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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/685,466	10/16/2003	Myung-Song Jung	1349.1288	5434

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STAAS & HALSEY LLP
SUITE 700
1201 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER	
VO, ANH T N	
ART UNIT	**PAPER NUMBER**
2861	

DATE MAILED: 03/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	**Application No.** 10/685,466	**Applicant(s)** JUNG ET AL.	
	Examiner Anh T.N. Vo	**Art Unit** 2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *Amendment filed on 1/17/2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

FINAL REJECTION

CLAIM REJECTIONS

Claim Rejections - 35 U.S.C. § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-6 and 8-15 remain rejected under 35 U.S.C. 103 (a) as being unpatentable over Kobayashi et al. (US Pat. 6,454,398) in view of Koitabashi et al (US 5,216,450) and Oda et al. (US Pat. 5,552,816).

Kobayashi et al. disclose in Figures 1a –3 an ink cartridge for an ink jet printer comprising:

- a foam chamber (411) generating negative pressure, including a foam (420) with an air passage (415), an ink filter (425) and an ink head (not shown), the foam (420) is disposed inside the foam chamber (411) (Figures 1a-1b);
- an ink chamber (412) storing ink, disposed at one side of the foam chamber (411) and divided from the foam chamber by a partition (410) having a connecting opening (419) connecting the ink chamber (412) with the foam chamber (411);
a cartridge cover (16) closing upper ends of the ink chamber (412) and foam chamber (411) and having an ink inlet (415);
- wherein the air passage (415) is formed vertically and close to the partition (410) (Figure 1a);

- wherein a cross section of the air passage (415) is substantially circular (Figure 1a); and
- wherein the connecting opening (419) is formed at a lowest end of the partition (410) (Figure 1a).

However, Kobayashi et al. do not disclose that an air passage is formed from an upper end of the foam toward a lower end, a part of a bottom of a foam chamber slopes down and the foam is disposed inside the foam chamber.

Koitabashi et al suggests in Figures 5A-5B a printing device comprising a vent passage tube (209) is arranged from a buffer chamber (208) to an atmosphere through a foam (107) for suppressing the vaporization of the ink that would maintain the stable recording for a long time, see lines 20-30, column 2 and lines 5-12, column 3. Koitabashi also suggests on lines 4-11, column 8, that the buffer chamber (208) may be positioned in the ink absorbent (107) at any position.

Oda et al. disclose in Figure 1 an ink tank comprising a foam chamber (T), a foam (25) and a part of a bottom (21) of a foam chamber (T) being sloped down for reducing the collection of residual ink.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the teaching of the vent passage tube taught by Koitabashi et al into the ink cartridge of Kobayashi et al for the purpose of suppressing the vaporization of the ink that would maintain the stable recording for a long time, and the suggestion of the declined bottom suggested by Oda et al in the ink cartridge of Kobayashi et al. for the purpose reducing the collection of the residual ink. Also, as shown in Figure 5B of Koitabashi et al, one end (209A) of the air tube (209) locates at the opposite side of the head (102). Thus, the end (209A) is seen as the upper end of the foam (107) and the head (102) is at the lower end of the foam (107). Therefore, one end of the air tube in the modified ink cartridge of Kobayashi et al in view of Koitabashi et al would be obviously positioned on the lid (16) of the ink tank.

With regard to claims 2-6 and 9-15, although Kobayashi et al. in view of Koitabashi et al and Oda et al. doe not specify that the air passage is substantially polygonal, formed vertically and close to the partition, or disposed to slope such that a lower end thereof inclines toward the partition more than an upper end, a distance between the air passage and the partition is larger near the upper end of the cartridge than at the lower end and/or a distance between the air passage and the partition is larger near the lower end of the cartridge than at the upper end.; however, a skilled artisan realizes that the air passage tube (209) of Koitabashi et al can be modified and rearranged within the tank for accommodating with the size and shape of the tank so that the suppression of the ink vaporization would be optimum. Thus, modifying and rearranging the vent tube of Koitabashi as claimed is considered to be a matter of a mechanical design expedient for an engineer depending on a particular application. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify and rearrange the vent tube of Koitabashi et al as claimed for the purpose of accommodating with the size and shape of the ink tank that would optimize the suppression of the ink vaporization.

Claims 7 and 16 remain rejected under 35 U.S.C. 103 (a) as being unpatentable over Kobayashi et al. (US Pat. 6,454,398) in view of Koitabashi et al (US 5,216,450) and Oda et al. (US Pat. 5,552,816) as applied to claim 1 and further in view of Oda et al. (Us Pat. 6,042,224)

Kobayashi et al. (6,454,398) in view of Koitabashsi et al. (5,216,450) and Oda et al. disclose the basic features of the claimed invention as stated above but do not disclose the ink filter that is disposed at a position lower than the connecting opening.

Oda et al ('224) suggests in Figures 1-2B an ink tank comprising:
- a printhead (3);
- a foam chamber (1) containing a foam (12);
- an ink chamber (16) storing ink; and
the ink filter (17) is disposed at a position lower than the connecting opening (through hole) so that dust or foreign material would not clog the connecting opening.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the teaching of Oda et al. into Kobayashi as modified for the purpose of preventing the connecting opening from being clogged by dust or foreign materials.

Claims 1-6 and 8-15 are further rejected under 35 U.S.C. 103 (a) as being unpatentable over Kobayashi et al. (US Pat. 6,454,398) in view of Allen (US 4,968,998) and Oda et al. (US Pat. 5,552,816).

Kobayashi et al. disclose in Figures 1a –3 an ink cartridge for an ink jet printer comprising:

- a foam chamber (411) generating negative pressure, including a foam (420) with an air passage (415), an ink filter (425) and an ink head (not shown), the foam (420) is disposed inside the foam chamber (411) (Figures 1a-1b);
- an ink chamber (412) storing ink, disposed at one side of the foam chamber (411) and divided from the foam chamber by a partition (410) having a connecting opening (419) connecting the ink chamber (412) with the foam chamber (411);

a cartridge cover (16) closing upper ends of the ink chamber (412) and foam chamber (411) and having an ink inlet (415);

- wherein the air passage (415) is formed vertically and close to the partition (410) (Figure 1a);
- wherein a cross section of the air passage (415) is substantially circular (Figure 1a); and
- wherein the connecting opening (419) is formed at a lowest end of the partition (410) (Figure 1a);

However, Kobayashi et al. do not disclose an air passage that is formed from an upper end thereof toward a lower end; a part of a bottom of a foam chamber slopes down and the foam is disposed inside the foam chamber.

Allen suggests in Figure 2 a printing device comprising air passage (26) being arranged from the upper end of a foam (20) toward the lower end of the foam (20) for preventing the tank from overfilling that would cause ink leakage and the failure of the delivery pressure, see lines 15-25, column 3 and 40-45, column 5. Noted that, the air passage (26) also is used to refill ink. After filling the tube (26) functions as an air passage because its end (36) is opened to the atmosphere.

Oda et al. disclose in Figure 1 an ink tank comprising a foam chamber (T), a foam (25) and a part of a bottom (21) of a foam chamber (T) being sloped down and the foam (25) for reducing left-over residual ink since the slop reduces the ink collection.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the teaching of the air passage taught by Allen into the printing device of Kobayashi et al for the purpose of preventing the tank from overfilling and reducing the failure of the delivery pressure, and the suggestion of the declined bottom suggested by Oda et al into printing device of Kobayashi et al. for the purpose reducing the collection of the residual ink.

With regard to claims 2-6 and 9-15, although Kobayashi et al. in view of Allen and Oda et al. doe not specify that the air passage is substantially polygonal, formed vertically and close to the partition, or disposed to slope such that a lower end thereof inclines toward the partition more than an upper end, a distance between the air passage and the partition is larger near the upper end of the cartridge than at the lower end and/or a distance between the air passage and the partition is larger near the lower end of the cartridge than at the upper end.; however, a skilled artisan realizes that the air passage tube of Allen can be modified and rearranged within the tank for accommodating with the size and shape of the tank so that the suppression of the ink vaporization would be optimum. Thus, modifying and rearranging the vent tube of Allen as claimed is considered to be a matter of a mechanical design expedient for an engineer depending on a particular application. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify and rearrange the vent tube of Allen as claimed for the purpose of accommodating with the size and shape of the ink tank that would optimize the suppression of the ink vaporization.

Claims 7 and 16 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Kobayashi et al. (US Pat. 6,454,398) in view of Allen (US 4,968,998) and Oda et al. (US Pat. 5,552,816) as applied to claim 1 and further in view of Oda et al. (Us Pat. 6,042,224)

Kobayashi et al. in view of Allen and Oda et al. disclose the basic features of the claimed invention as stated above but do not disclose the ink filter that is disposed at a position lower than the connecting opening.

Oda et al ('224) suggests in Figures 1-2B an ink tank comprising:

- a printhead (3);
- a foam chamber (1) containing a foam (12);
- an ink chamber (16) storing ink; and

the ink filter (17) is disposed at a position lower than the connecting opening (through hole) so that dust or foreign material would not clog the connecting opening.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the teaching of Oda et al. into Kobayashi as modified for the purpose of preventing the connecting opening from being clogged by dust or foreign materials.

Response to Applicant's Arguments

The applicant argues that the air passage (209) of Koitabashi is not formed from an upper end toward a lower end as claimed because it extends from from the central portion to the atmosphere, Oda does not teach a foam chamber and the combination of the Kobayashi, Koitabashi and Oda does not suggest the features as recited in claim 1. The arguments are not persuasive because claim 1 claims the direction of the air passage and does not specify how far the air passage is stopped, and the chamber (T) of Oda is considered to be a foam chamber because it includes a foam (25). As shown on Figure 5B of Koitabashi, the air passage (209) is formed in the direction from the upper end (atmosphere) toward the bottom end. Thus, the modified ink tank of Kobayashi in view of Koitabashi and Oda would meet all limitations recited in claim 1.

The applicant argues that the tube (26) is not the air tube because it is used to refill ink. The argument is not persuasive because the tube (26) of Allen also allows air to be removed from the foam during refilling ink, see lines 40-45, column 5. Thus, the tube (26) is considered to be an air passage.

CONCLUSION

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Anh Vo. whose telephone number is (571) 272-2262. The examiner can normally be reached on Tuesday to Friday from 9:00 A.M.to 7:00 P.M. The fax number of this Group 2861 is (571) 273-8300.

the air passage is stopped, and the chamber (T) of Oda is considered to be a foam chamber because it includes a foam (25). As shown on Figure 5B of Koitabashi, the air passage (209) is formed in the direction from the upper end (atmosphere) toward the bottom end. Thus, the modified ink tank of Kobayashi in view of Koitabashi and Oda would meet all limitations recited in claim 1.

The applicant argues that the tube (26) is not the air tube because it is used to refill ink. The argument is not persuasive because the tube (26) of Allen also allows air to be removed from the foam during refilling ink, see lines 40-45, column 5. Thus, the tube (26) is considered to be an air passage.

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ANH T.N. VO
PRIMARY EXAMINER
16 March 2006